

Installation Instructions

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION

PlantPax MPC ControlLogix Module

Catalog Numbers 1756-PPMPC, 9529-PPMPCENM

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The PlantPax[®] MPC ControlLogix[®] module with required but separately purchased firmware helps enable faster system performance, capacity, productivity, and security to help meet the growing demands of intelligent processing.

- Model Predictive Control (MPC) enables multivariable (10 x 10 x 10) closed-loop control, with dynamic constraint enforcement, explicit dynamic models to manage complex dynamic interactions, and predictive disturbance rejection.
- Embedded MPC allows simplified use of integrated control with simplified integration to available measurements and output signals in a robust control processor.
- Digitally signed and encrypted firmware helps protect against malicious intent.
- Display via the Studio 5000 Logix Designer[®] application, FactoryTalk[®] View SE faceplates, or PlantPax MPC Builder software provides enhanced diagnostics and troubleshooting.

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

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ATTENTION: Read this document and the documents listed in the Additional Resources section about installation, configuration and operation of this equipment before you install, configure, operate or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

注意：在安装、配置、操作和维护本产品前，请阅读本文档以及“其他资源”部分列出的有关设备安装、配置和操作的相应文档。除了所有适用规范、法律和标准的相关要求之外，用户还必须熟悉安装和接线说明。

安装、调整、投运、使用、组装、拆卸和维护等各项操作必须由经过适当训练的专业人员按照适用的操作规范实施。

如果未按照制造商指定的方式使用该设备，则可能会损害设备提供的保护。

ATENCIÓN: Antes de instalar, configurar, poner en funcionamiento o realizar el mantenimiento de este producto, lea este documento y los documentos listados en la sección Recursos adicionales acerca de la instalación, configuración y operación de este equipo. Los usuarios deben familiarizarse con las instrucciones de instalación y cableado y con los requisitos de todos los códigos, leyes y estándares vigentes.

El personal debidamente capacitado debe realizar las actividades relacionadas a la instalación, ajustes, puesta en servicio, uso, ensamblaje, desensamblaje y mantenimiento de conformidad con el código de práctica aplicable. Si este equipo se usa de una manera no especificada por el fabricante, la protección provista por el equipo puede resultar afectada.

ATENÇÃO: Leia este e os demais documentos sobre instalação, configuração e operação do equipamento que estão na seção Recursos adicionais antes de instalar, configurar, operar ou manter este produto. Os usuários devem se familiarizar com as instruções de instalação e fiação além das especificações para todos os códigos, leis e normas aplicáveis.

É necessário que as atividades, incluindo instalação, ajustes, colocação em serviço, utilização, montagem, desmontagem e manutenção sejam realizadas por pessoal qualificado e especializado, de acordo com o código de prática aplicável.

Caso este equipamento seja utilizado de maneira não estabelecida pelo fabricante, a proteção fornecida pelo equipamento pode ficar prejudicada.

ВНИМАНИЕ: Перед тем как устанавливать, настраивать, эксплуатировать или обслуживать данное оборудование, прочитайте этот документ и документы, перечисленные в разделе «Дополнительные ресурсы». В этих документах изложены сведения об установке, настройке и эксплуатации данного оборудования. Пользователи обязаны ознакомиться с инструкциями по установке и прокладке соединений, а также с требованиями всех применимых норм, законов и стандартов.

Все действия, включая установку, наладку, ввод в эксплуатацию, использование, сборку, разборку и техническое обслуживание, должны выполняться обученным персоналом в соответствии с применимыми нормами и правилами.

Если оборудование используется не предусмотренным производителем образом, защита оборудования может быть нарушена.

注意：本製品を設置、構成、稼働または保守する前に、本書および本機器の設置、設定、操作についての参考資料の該当箇所に記載されている文書に目を通してください。ユーザは、すべての該当する条例、法律、規格の要件に加えて、設置および配線の手順に習熟している必要があります。

設置調整、運転の開始、使用、組立て、解体、保守を含む諸作業は、該当する実施規則に従って訓練を受けた適切な作業員が実行する必要があります。

本機器が製造メーカーにより指定されていない方法で使用されている場合、機器により提供されている保護が損なわれる恐れがあります。

ACHTUNG: Lesen Sie dieses Dokument und die im Abschnitt „Weitere Informationen“ aufgeführten Dokumente, die Informationen zu Installation, Konfiguration und Bedienung dieses Produkts enthalten, bevor Sie dieses Produkt installieren, konfigurieren, bedienen oder warten. Anwender müssen sich neben den Bestimmungen aller anwendbaren Vorschriften, Gesetze und Normen zusätzlich mit den Installations- und Verdrahtungsanweisungen vertraut machen.

Arbeiten im Rahmen der Installation, Anpassung, Inbetriebnahme, Verwendung, Montage, Demontage oder Instandhaltung dürfen nur durch ausreichend geschulte Mitarbeiter und in Übereinstimmung mit den anwendbaren Ausführungsvorschriften vorgenommen werden.

Wenn das Gerät in einer Weise verwendet wird, die vom Hersteller nicht vorgesehen ist, kann die Schutzfunktion beeinträchtigt sein.

ATTENTION: Lisez ce document et les documents listés dans la section Ressources complémentaires relatifs à l'installation, la configuration et le fonctionnement de cet équipement avant d'installer, configurer, utiliser ou entretenir ce produit. Les utilisateurs doivent se familiariser avec les instructions d'installation et de câblage en plus des exigences relatives aux codes, lois et normes en vigueur.

Les activités relatives à l'installation, le réglage, la mise en service, l'utilisation, l'assemblage, le démontage et l'entretien doivent être réalisées par des personnes formées selon le code de pratique en vigueur.

Si cet équipement est utilisé d'une façon qui n'a pas été définie par le fabricant, la protection fournie par l'équipement peut être compromise.

주의：본 제품 설치, 설정, 작동 또는 유지 보수하기 전에 본 문서를 포함하여 설치, 설정 및 작동에 관한 참고 자료 섹션의 문서들을 반드시 읽고 숙지하십시오. 사용자는 모든 관련 규정, 법규 및 표준에서 요구하는 사항에 대해 반드시 설치 및 배선 지침을 숙지해야 합니다.

설치, 조정, 가동, 사용, 조립, 분해, 유지보수 등 모든 작업은 관련 규정에 따라 적절한 교육을 받은 사용자를 통해서만 수행해야 합니다.

본 장비를 제조사가 명시하지 않은 방법으로 사용하면 장비의 보호 기능이 손상될 수 있습니다.

ATTENZIONE: Prima di installare, configurare ed utilizzare il prodotto, o effettuare interventi di manutenzione su di esso, leggere il presente documento ed i documenti elencati nella sezione "Altre risorse", riguardanti l'installazione, la configurazione ed il funzionamento dell'apparecchiatura. Gli utenti devono leggere e comprendere le istruzioni di installazione e cablaggio, oltre ai requisiti previsti dalle leggi, codici e standard applicabili.

Le attività come installazione, regolazioni, utilizzo, assemblaggio, disassemblaggio e manutenzione devono essere svolte da personale adeguatamente addestrato, nel rispetto delle procedure previste.

Qualora l'apparecchio venga utilizzato con modalità diverse da quanto previsto dal produttore, la sua funzione di protezione potrebbe venire compromessa.

DİKKAT: Bu ürünün kurulumu, yapılandırılması, işletilmesi veya bakımı öncesinde bu dokümanı ve bu ekipmanın kurulumu, yapılandırılması ve işletimi ile ilgili ilave Kaynaklar bölümünde yer listelenmiş dokümanları okuyun. Kullanıcılar yürürlükteki tüm yönetmelikler, yasalar ve standartların gereksinimlerine ek olarak kurulum ve kablolama talimatlarını da öğrenmek zorundadır. Kurulum, ayarlama, hizmete alma, kullanma, parçaları birleştirme, parçaları sökme ve bakım gibi aktiviteler sadece uygun eğitimleri almış kişiler tarafından yürürlükteki uygulamaya yönetmeliklerine uygun şekilde yapılabilir.

Bu ekipman üretici tarafından belirlenmiş amacın dışında kullanılırsa, ekipman tarafından sağlanan koruma bozulabilir.

注意事項：在安装、設定、操作或維護本產品前，請先閱讀此文件以及列於「其他資源」章節中有關安裝、設定與操作此設備的文件。使用者必須熟悉安裝和配線指示，並符合所有法規、法律和標準要求。

包括安裝、調整、交付使用、使用、組裝、拆卸和維護等動作都必須交由已經過適當訓練的人員進行，以符合適用的實作法規。

如果將設備用於非製造商指定的用途時，可能會造成設備所提供的保護功能受損。

POZOR: Než začnete instalovat, konfigurovat či provozovat tento výrobek nebo provádět jeho údržbu, přečtěte si tento dokument a dokumenty uvedené v části Dodatečné zdroje ohledně instalace, konfigurace a provozu tohoto zařízení. Uživatelé se musejí vedle požadavků všech relevantních vyhlášek, zákonů a norem nutně seznámit také s pokyny pro instalaci a elektrické zapojení.

Činnosti zahrnující instalaci, nastavení, uvedení do provozu, užívání, montáž, demontáž a údržbu musí vykonávat vhodně proškolený personál v souladu s příslušnými prováděcími předpisy. Pokud se toto zařízení používá způsobem neodpovídajícím specifikaci výrobce, může být narušena ochrana, kterou toto zařízení poskytuje.

UWAGA: Przed instalacją, konfiguracją, użytkowaniem lub konserwacją tego produktu należy przeczytać niniejszy dokument oraz wszystkie dokumenty wymienione w sekcji Dodatkowe źródła omawiające instalację, konfigurację i procedury użytkowania tego urządzenia. Użytkownicy mają obowiązek zapoznać się z instrukcjami dotyczącymi instalacji oraz oprzewodowania, jak również z obowiązującymi kodeksami, prawem i normami.

Działania obejmujące instalację, regulację, przekazanie do użytkowania, użytkowanie, montaż, demontaż oraz konserwację muszą być wykonywane przez odpowiednio przeszkolony personel zgodnie z obowiązującym kodeksem postępowania.

Jeśli urządzenie jest użytkowane w sposób inny niż określony przez producenta, zabezpieczenie zapewniane przez urządzenie może zostać ograniczone.

OBST! Läs detta dokument samt dokumentet, som står listat i avsnittet Övriga resurser, om installation, konfigurering och drift av denna utrustning innan du installerar, konfigurerar eller börjar använda eller utföra underhållsarbete på produkten. Användare måste bekanta sig med instruktioner för installation och kabeldragning, förutom krav enligt gällande koder, lagar och standarder.

Åtgärder som installation, justering, service, användning, montering, demontering och underhållsarbete måste utföras av personal med lämplig utbildning enligt lämpligt bruk.

Om denna utrustning används på ett sätt som inte anges av tillverkaren kan det hända att utrustningens skyddsanordningar försätts ur funktion.



LET OP: Lees dit document en de documenten die genoemd worden in de paragraaf Aanvullende informatie over de installatie, configuratie en bediening van deze apparatuur voordat u dit product installeert, configureert, bedient of onderhoudt. Gebruikers moeten zich vertrouwd maken met de installatie en de bedringsinstructies, naast de vereisten van alle toepasselijke regels, wetten en normen.

Activiteiten zoals het installeren, afstellen, in gebruik stellen, gebruiken, monteren, demonteren en het uitvoeren van onderhoud mogen uitsluitend worden uitgevoerd door hiervoor opgeleide personeel en in overeenstemming met de geldende praktijkregels.


Indien de apparatuur wordt gebruikt op een wijze die niet is gespecificeerd door de fabrikant, dan bestaat het gevaar dat de beveiliging van de apparatuur niet goed werkt.

Product Advisories

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
<p>Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>	<p>Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>
 <p>WARNING: Explosion Hazard -</p> <ul style="list-style-type: none"> Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. Substitution of components may impair suitability for Class I, Division 2. If this product contains batteries, they must only be changed in an area known to be nonhazardous. 	 <p>AVERTISSEMENT: Risque d'Explosion -</p> <ul style="list-style-type: none"> Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2. S'assurer que l'environnement est classé non dangereux avant de changer les piles.

UK and European Hazardous Location Approval

The following applies to products marked , II 3 G. Such modules:

- Are Equipment Group II, Equipment Category 3, and comply with the Essential Health and Safety Requirements relating to the design and construction of such equipment given in Annex II to EU Directive 2014/34/EU and Schedule 1 of the UKEX Regulation 2016 No. 1107. See the UKEX and EU Declaration of Conformity at rok.auto/certifications for details.
- The type of protection is <Ex ec IIC T4 Gc> Equipment protection by increased safety "e".
- Equipment protection by increased safety "e", reference certificate number UL22ATEX2817X and UL22UKEX2601X.
- Are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification according to UKEX Regulation 2016 No. 1107 and ATEX directive 2014/34/EU.

IEC Hazardous Location Approval

The following applies to products with IECEx certification.

- Such products are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification.
- The type of protection is <Ex ec IIC T4 Gc>.
- IECEx certificate number IECEx UL 22.0062X.

Special Conditions for Safe Use



WARNING:

- This equipment is not resistant to sunlight or other sources of UV radiation.
- This equipment shall be mounted in an UKEX/ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (in accordance with EN/IEC 60079-0) and used in an environment of not more than Pollution Degree 2 (as defined in EN/IEC 60664-1) when applied in Zone 2 environments. The enclosure must be accessible only by the use of a tool.
- This equipment shall be used within its specified ratings defined by Rockwell Automation.
- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage at the supply terminals to the equipment.
- The instructions in the user manual shall be observed.
- This equipment must be used only with UKEX/ATEX/IECEx certified Rockwell Automation backplanes.
- Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- The USB port is permanently disabled. Do not use the USB port in hazardous locations.

Environment and Enclosure



ATTENTION:

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in EN/IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.

This equipment is not intended for use in residential environments and may not provide adequate protection to radio communication services in such environments.

This equipment is supplied as open-type equipment for indoor use. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts.

The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA or be approved for the application if nonmetallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see the following:

- Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#), for additional installation requirements.
 - NEMA Standard 250 and EN/IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosures.
-

Prevent Electrostatic Discharge



ATTENTION: This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
 - Wear an approved grounding wriststrap.
 - Do not touch connectors or pins on component boards.
 - Do not touch circuit components inside the equipment.
 - Use a static-safe workstation, if available.
 - Store the equipment in appropriate static-safe packaging when not in use.
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ATTENTION:

- Before installing, configuring, operating, or maintaining this product, read this document and the documents that are listed in the additional resources section for installing, configuring, or operating equipment. Users must familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.
 - Installation, adjustments, putting into service, use, assembly, disassembly, and maintenance shall be carried out by suitably trained personnel in accordance with applicable code of practice. In case of malfunction or damage, no attempts at repair must be made. The module must be returned to the manufacturer for repair. Do not dismantle the module.
 - If this equipment is used in a manner that is not specified by the manufacturer, the protection that is provided by the equipment can be impaired.
 - This equipment is certified for use only within the surrounding air temperature range of 0...60 °C (32...140 °F). The equipment must not be used outside of this range.
 - Use only a soft dry anti-static cloth to wipe down equipment. Do not use any cleaning agents.
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Parts List

The controller ships with these parts:

- MPC module
- Mode switch key
- 1756-ESMCAP module (installed on the MPC module for backup power)

The controller requires the following:

- To install the module, you must purchase a PlantPax MPC firmware SD card (catalog number 9529-PPMPCENM). The SD card is ordered separately.
- If you are programming, you must have PlantPax MPC Builder software (catalog number 9529-PPMPCBENE) installed. The version of the PlantPax MPC firmware and the PlantPax MPC Builder configuration software must match.

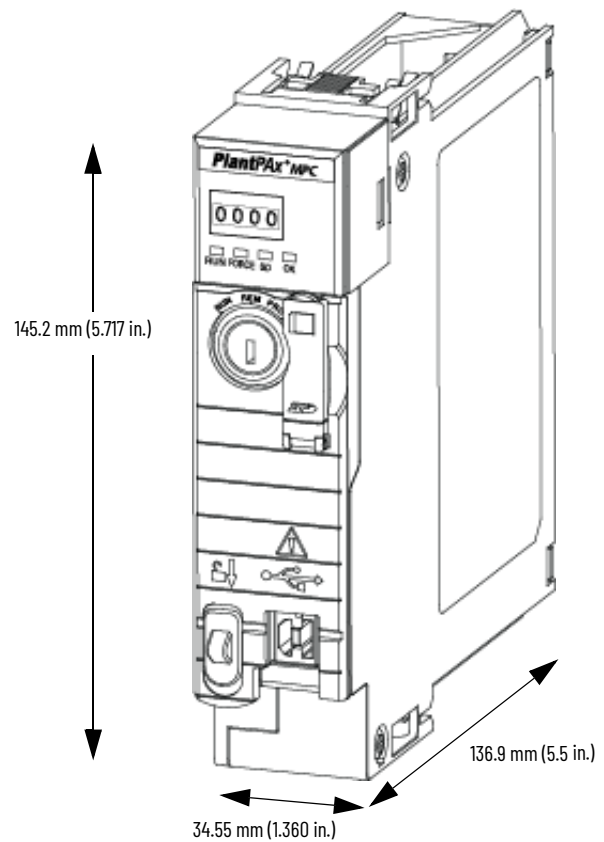
Required System Components

The MPC controller module is compatible with the following chassis, controllers, and power supplies.

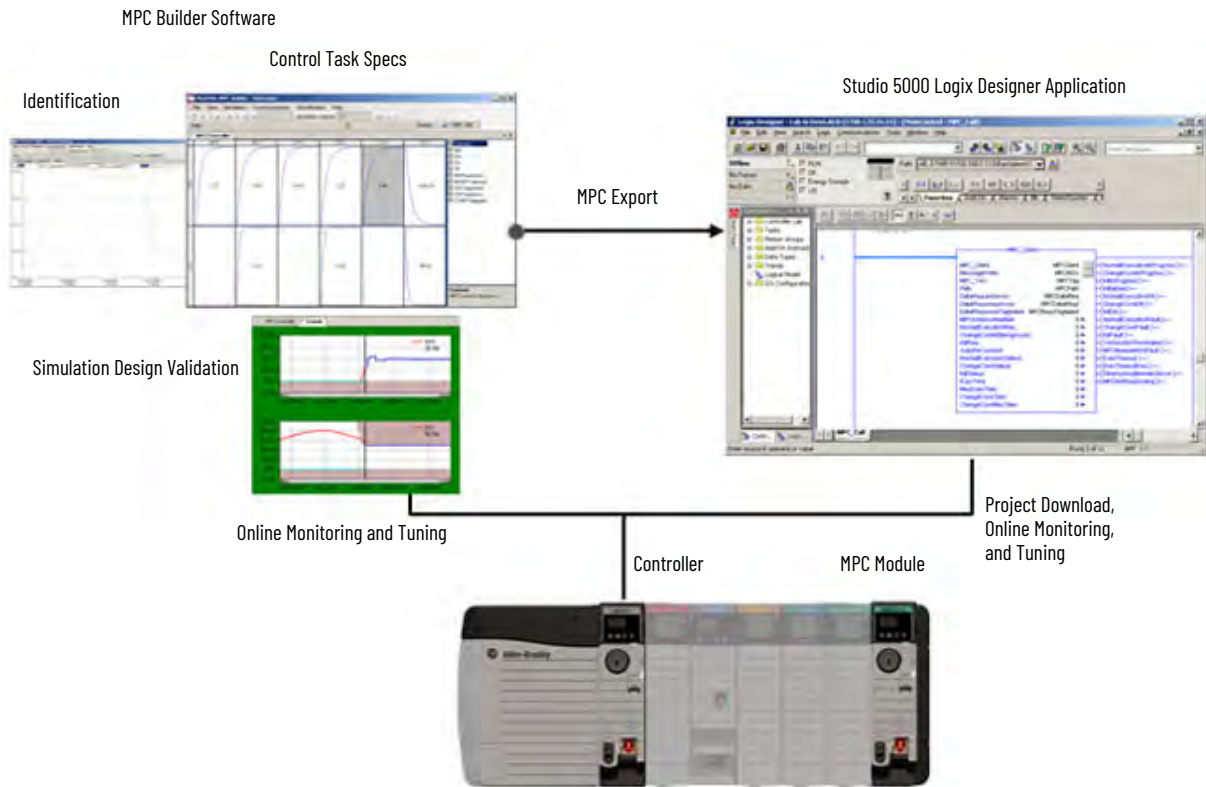
Compatible Equipment

Component	Cat. No.
Chassis, series C, and series B	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17
Controllers	1756 ControlLogix 5560 or ControlLogix 5570 controller with firmware revision 19 or greater
Power supply, standard	1756-PA72, 1756-PA75, 1756-PB72, 1756-PB75, 1756-PC75, 1756-PH75
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2

Product Dimensions



Programming in the Familiar Logix 5000 Environment



As shown, the MPC Builder software creates the MPC Add-On Instruction that is communicated to the module from a controller. The MPC module runs algorithms that are messaged to the controller via the Add-On Instruction. Both direct and indirect (via a L5x format file) exports to a task within an ACD file are supported.

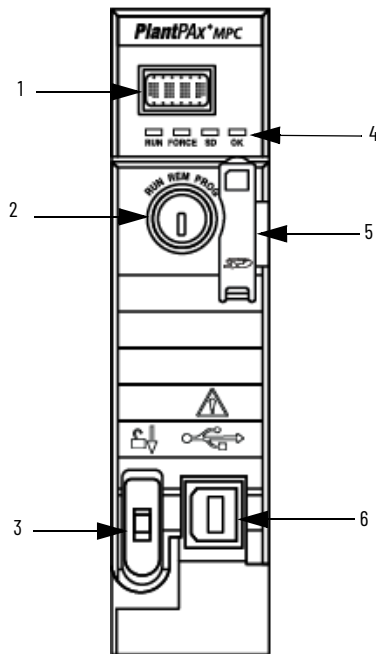
The MPC Builder software exports the designed MPC functions to a Studio 5000 Logix Designer project as:

- MPC tag
- MPC data types
- Rung with MPC Add-On Instruction, which handles handshaking between an application program running on a controller. An instance of the MPC instruction is executed in the MPC module

Connectors and Status Indicators



ATTENTION: The USB port is not functional. This port is permanently disabled.



Connectors and Status Indicators

Item	Description
1	X-character display
2	Mode switch (Remote, Run, Program)
3	ESMCAP release button
4	Run, Force, SD, and OK status indicators
5	SD card slot and Reset button that is located behind the door
6	USB port (disabled)

Install the Module



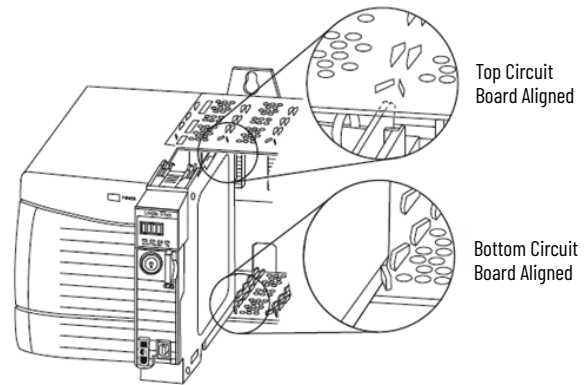
WARNING: When you insert or remove the module while backplane power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electric arcs cause excessive wear to contacts on both the module and its mating connector. Worn contacts can create electrical resistance that can affect module operation.

When installing an MPC controller module, you can do the following:

- Place the controller or module in any slot (including in separate chassis).
- Use multiple MPC modules in the same chassis.
- Communicate with MPC Add On Instructions both local and in remote chassis.

In non-hazardous areas, you can install or remove a ControlLogix® MPC module while chassis power is on. The system must be operating and the module registers faults on removal.

1. Align the circuit board with the top and bottom guides in the chassis.
2. Slide the module into the chassis until it snaps into place.
3. Verify that the controller is flush with the power supply or other installed modules.



Install the SD Card

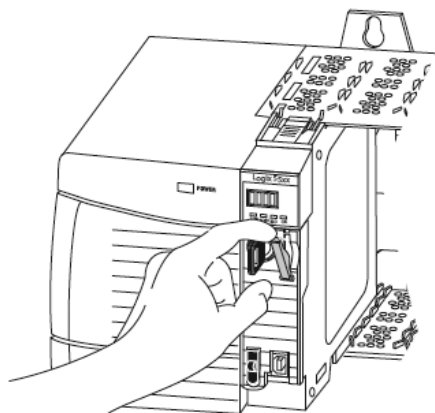
Rockwell Automation recommends that you purchase the PlantPax MPC firmware SD Card (catalog number 9529-PPMPCENM) along with the 1756-PPMPC module. The 1756-PPMPC module and the SD Card are delivered separately.

1. Switch the key to Prog mode.
2. Remove the power from the PlantPax MPC module by turning the power off on the chassis. Display lights must be off before proceeding.

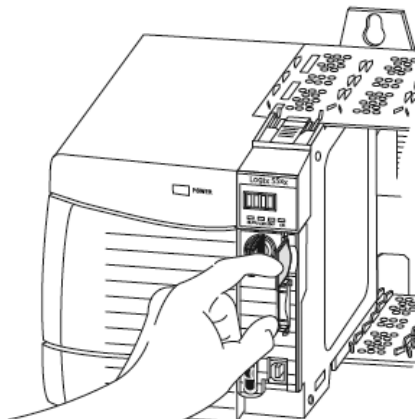


WARNING: When you insert or remove the CompactFlash/SD memory card while power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

3. Insert the SD Card. To access the SD Card slot, open the door on the controller key panel.



4. Gently press the card until it clicks into place.



5. Apply power to the module generally by turning power on for the chassis.
6. Observe that the module initialization proceeds without fault and DISPLAY messaging describes the installed version of PlantPax MPC (identified and previously noted on the SD Card).
7. Switch the key to Run mode.

Remove or Reinstall the ESM

The PlantPax MPC module ships with the Energy Storage Module (ESM) already installed on the MPC module for backup power. The following procedures are available if you must remove or reinstall the ESM.



WARNING: If you remove or reinstall the energy storage module while backplane power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector.

Remove the ESM

Consider these points before removing the ESM:

- The 1756-PPMPC controllers come with the 1756-ESMCAP module installed.
- After the 1756-PPMPC controllers lose power, because the chassis power is turned off or the controller has been removed from a powered chassis, do not immediately remove the ESM.

Wait until the OK status indicator on the controller transitions from Green to Steady Red to OFF before you remove the ESM.

IMPORTANT Before you remove an ESM, make necessary adjustments to your program to account for potential changes to the WallClockTime attribute.

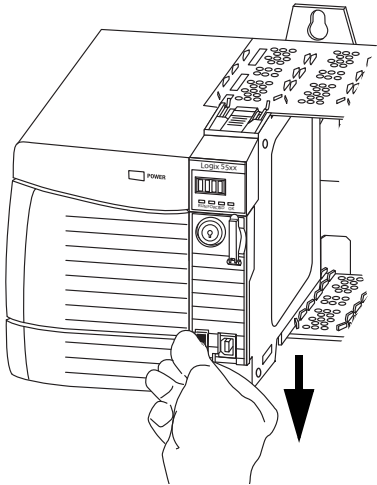
To remove an ESM module from the controller, complete these steps:

1. Remove the key from the mode switch.

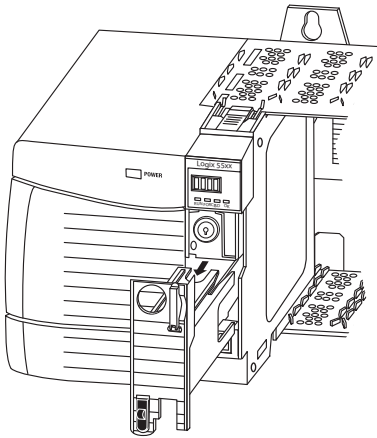
IMPORTANT The next step depends on which of the following conditions applies to your application.

- If you are removing the ESM from a powered 1756-PPMPC controller, go to [step 2](#).
- If you are removing the ESM from a 1756-PPMPC controller that is not powered, because the chassis power is turned off or the controller has been removed from a powered chassis, do not immediately remove the ESM. Wait until the OK status indicator on the controller transitions from Green to Steady Red to OFF before you remove the ESM. After the OK status indicator transitions to Off, go to [step 2](#).

- Use your thumb to press down on the black release.



- Pull the ESM away from the controller.



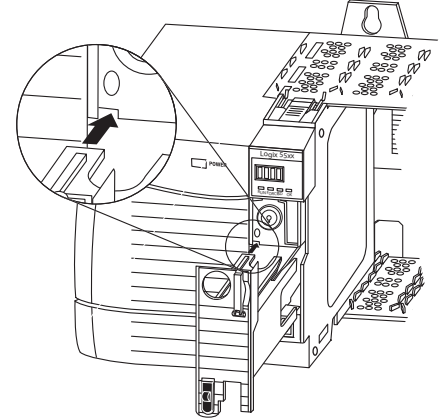
Reinstall the ESM

To reinstall the ESM, complete these steps:



ATTENTION: To avoid potential damage to the product when inserting the ESM, align it in the track and slide forward with minimal force until the ESM snaps into place.

- Align the tongue-and-groove slots of the ESM and controller.



- Slide the ESM back until it snaps into place.

The ESM begins charging after installation. The following status messages indicate charging status:

- ESM Charging
- CHRG

After you install the ESM, it can take up to 15 seconds for the charging status messages to display.

IMPORTANT Allow the ESM to finish charging before removing power from the controller. Failure to do so can result in the loss of the application program. A type 1, code 40 major fault is logged on power-up. To verify that the ESM is fully charged, check the status display to confirm that the messages CHRG or ESM charging are no longer indicated.



We recommend that you check the WallClockTime object attributes after reinstalling an ESM to verify that the time of the controller is correct.

The ESM contains a real-time clock. If the ESM is new or came from another controller, the WallClockTime object attributes for your controller can change.

Confirm the Installation

After you have inserted the controller into the chassis, installed the firmware SD Card, and applied power, the display and status indicators display status information for the controller. The display identifies the module as a PlantPax MPC module and displays the current version number of the PlantPax MPC firmware.

Specifications

Attribute	1756-PPMPC	1756-ESMCAP
Input and current ratings	1.2V DC: 5 mA, 5.1V DC: 800 mA	5.1V DC: 300 mA
Power dissipation	2.5 W	
Thermal dissipation	8.5 BTU/hr	
Temperature, operating <ul style="list-style-type: none"> • IEC 60068-2-1 (Test Ae, Operating Cold) • IEC 60068-2-2 (Test Be, Operating Dry Heat) • IEC 60068-2-14 (Test Nb, Operating Thermal Shock) 	$0\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$ ($+32\text{ }^{\circ}\text{F} \leq T_a \leq +140\text{ }^{\circ}\text{F}$)	
Temperature, surrounding air, max	60 °C (140 °F)	
Enclosure type rating	None (open-style)	
Isolation voltage	30V (continuous), basic insulation, USB port to backplane	
Temperature code	T4	

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
PlantPAX Distributed Control System Selection Guide, publication PROCES-SG001	Provides basic definitions of system elements and sizing guidelines for procuring a PlantPAX system. Information includes MPC software and license.
1756 ControlLogix Controllers User Manual, publication 1756-UM001	Describes how to configure and use ControlLogix controllers.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at rok.auto/literature.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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Publication 1756-IN044B-EN-P - October 2022 | Supersedes Publication 1756-IN044A-EN-P - August 2016

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PN-681274